

**ABSTRACT OF THE DISCLOSURE**

The use of a chimeric anti-CD20 antibody, RITUXAN®, as an *in vivo* or *in vitro* purging agent, of patients receiving bone marrow or peripheral blood stem cell transplant during treatment of B-cell-related malignancies, e.g., B-cell lymphomas or leukemias, is disclosed. Such purging may enhance engraftment and/or prevent disease relapse in such patients.